

PIERBORNE

EMERGENCY POWER VAULT



Project:

Type:



Expert Series 375W to 1150W

- ✓ **UL924 Listed**
- ✓ **120/277V - Field Selectable**
- ✓ **FlexDim Technology (0-10V)**

EM POWER VAULT EXPERT SERIES

Pierborne offers the EMPV Expert Series to back up any 120V or 277V device or fixture that needs to operate during a power failure. The Expert Series can provide 375W to 1,150W for 90 minutes, meeting UL924 requirements. Each unit is equipped with one (1) line voltage bypass, which can be upgraded to a four (4) line voltage bypass (the 4 Circuit Option).

OUTPUT BREAKERS

Choose one (1) or two (2) output breakers for the 375W & 600W models and one (1) to six (6) output breakers for the 750W, 950W & 1,150W units.

FLEXDIM TECHNOLOGY

The EMPV Expert Series is capable of bypassing a 0-10V dimmer and can be set to provide 25%, 50%, 75% or 100% of the fixture's output during emergency operations. This allows for more fixtures at a reduced output on one EMPV Expert unit. The FlexDim Option will bypass one (1) 0-10V dimmer and four (4) separate 0-10V dimmer bypasses. Each output can be adjusted to the desired level (25% to 100%).



Let us help identify the proper amount of power needed to illuminate the selected luminaires for emergency code compliance.



UL's Standard for LIFE SAVING Emergency Lighting and Power Equipment. Easily standardize on-site UL mandatory code compliant testing.



Integrate your specified downlights to provide an emergency path of egress. Enhance the aesthetic appeal of your area by getting rid of unsightly "bug-eyes".

“ inverter by
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Project:

Type:

EMPV - Expert Series

ORDERING GUIDE

375W & 600W

EMPV-EXPERT

Watts/VA

375
600

System Options

- OCB1- One Output Breaker
- OCB2- Two Output Breakers
- ICB- Input Breaker
- FLEX4- FlexDim (4 Circuit Dimming)**
- 4C- 4 Output Circuit Switching**
- SDT- Self Diagnostics & Testing

750W-1150W

EMPV-EXPERT

Watts/VA

750
950
1150

System Options

- OCBX- One to Six Output Breakers
(X = 1 to 6 Output Breakers)
- ICB- Input Breaker (Not to exceed 6)
- FLEX4- FlexDim (4 Circuit Dimming)**
- 4C- 4 Output Circuit Switching**
- SDT- Self Diagnostics & Testing

**FlexDim & 4C Options are NOT available together

0-10V Dimming?

Pierborne can provide FlexDim, UL924 Bypass/Shunt Relays & UL1008 Transfer switches.

QTY.

UL924 Bypass/Shunt Relays - PBERSN

UL1008 & UL924 Automatic Transfer Switch - PBESR1008

MODEL #	CAPACITY FOR 90 MINS.		WEIGHT (lbs)	ONLINE SYSTEM EFFICIENCY (FULL LOAD)	NUMBER OF BATTERIES	BATTERY VOLTAGE (VCD)	BATTERY CURRENT	INPUT CURRENT		THERMAL OUTPUT (BTUs)		HOUSING DIMENSIONS		
	WATTS	VA						120VAC (Max)	277VAC (Max)	ON-LINE	EMERGENCY	L	H	D
EMPV-EXPERT-375	375	375	113	98%	5	60	7.3 amps	3.43	1.49	11	205	18"	16.625"	8.25"
EMPV-EXPERT-600	600	600	172	98%	8	96	7.1 amps	5.5	2.38	15	275	18"	25.25"	8.25"
EMPV-EXPERT-750	750	750	190	98%	8	48	18.2 ADC	7.53	3.26	14	416	22.4"	25.1"	9.2"
EMPV-EXPERT-950	950	950	222	98%	10	60	18.2 ADC	8.45	3.66	18	484	22.4"	25.1"	9.2"
EMPV-EXPERT-1150	1150	1150	254	98%	12	72	18.2 ADC	10.2	4.42	22	535	22.4"	25.1"	9.2"

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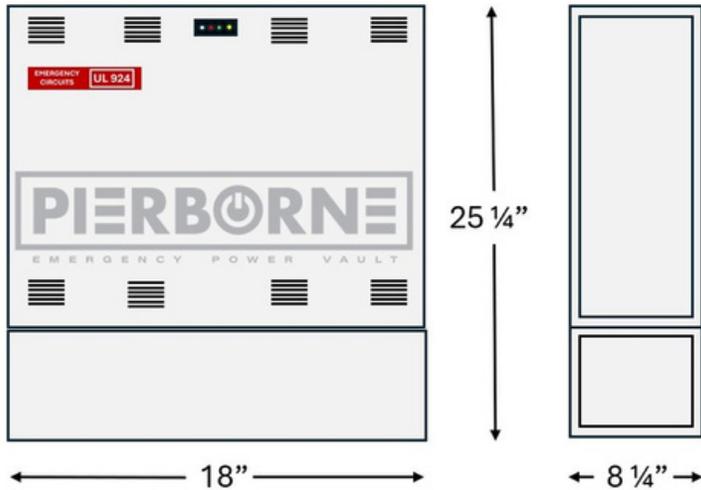
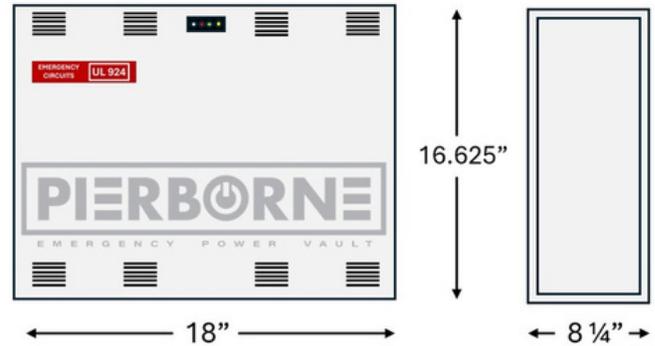
EMERGENCY POWER VAULT

Project:

Type:

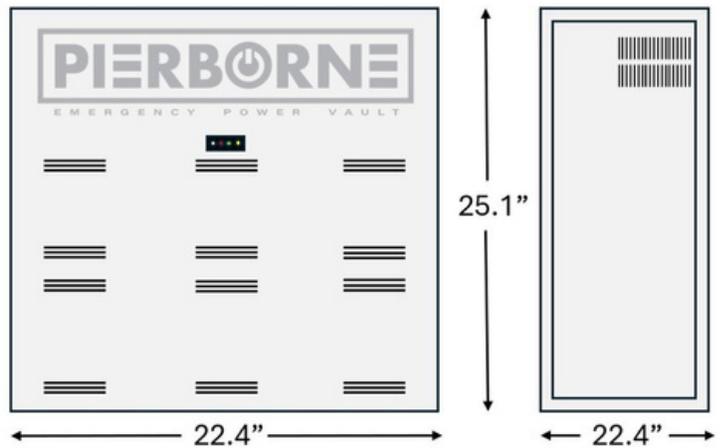
EMPV - Expert Series

EMPV Expert 375W



EMPV Expert 600W

EMPV Expert 750W, 950W & 1150W





Project:

Type:

EMPV - Expert Series

FEATURES

- Powers incandescent, fluorescent, induction and LED fixtures*
- Sinusoidal output eliminates compatibility problems
- Normally-ON and/or Normally-OFF load output
- Universal 120/277VAC, 60Hz. input/output - Field Selectable
- Unit capacities up to 220W/250VA
- "Soft Start" design reduces fixture inrush current
- Lumen output from fixture is 100% of nominal
- Unique design eliminates compatibility problems with LED drivers as well as fluorescent & induction ballasts
- Provisions for local switching capability - Always-ON during emergency conditions regardless of local switch position
- Unit may be installed 1,000 feet from controlled fixture(s)
- Normally-ON and/or Normally-OFF load output
- Compatible with dimming ballasts
- Emergency fixtures can be ON, OFF or SWITCHED
- AC-ON, Charge-ON and Inverter-ON LED indicators
- Solid-state, line latched low voltage disconnect provides protection against deep discharge
- Long life, maintenance-free lead-calcium battery
- Momentary test switch

*Consult factory for compatibility on other lamp types

SPECIFICATIONS

- Input Voltages: 120 or 277VAC $\pm 10\%$ - Field Selectable
 - (2) wire jumpers provided
- Input Frequencies: 60Hz $\pm 2\%$
- Input Surge Protection: Meets UL924
- Input Protection: Provided by service panel rated at 20amps maximum
- Output Voltages: 120 or 277VAC (60Hz)
- Efficiency Rating: 98% at full rated load (line)
- Waveform: Sinusoidal (digitally controlled)
- Static Voltage: $\pm 5\%$ during battery discharge 0-100% linear load
- Output Frequencies: 60Hz. $\pm 0.3\text{Hz}$ during emergency cycle
- Output Distortion: Less than 3% THD (linear load)
- Transfer Time: Less than 1.0 second
- Load Power Factor Range: 0.88 Lead to 0.88 Lag
- Minimum Loading: 0% of rated system capacity
- Output Protection 375 & 600W: Circuit breaker
- Output Protection 750 -1150W: Circuit breaker & overload shutdown protection

BATTERIES & CHARGER

- Battery: Sealed Lead Calcium (10 year life)
- Battery Voltage: 375W: 60VDC, 600W: 96VDC, 750W: 48VDC, 950W: 60VDC, 1150W: 72VDC
- Runtime: 90-minutes standard - Based on battery performance at 77°F (25°C). Other runtimes available, consult factory.
- Battery Protection: Low Voltage Battery Disconnect protects the battery from being severely damaged by deep discharge during prolonged power failures. Reverse polarity, DC overload and short circuit protection provided by a DC input breaker and fuse.
- Charger Type: Fully automatic, temperature compensated, dual-mode charger
- Power Consumption (Charger Only):
 - 37W max (2.5W standby) for 375W
 - 56W max (5W standby) for 600W
 - 53W max (4.3W standby) for 750W
 - 63W max (5.4W standby) for 950W
 - 73W max (6.7W standby) for 1150W
- Recharge Duty Cycle: Meets UL924 requirements
- Battery Circuit Breaker: Also used as battery isolator
- Controls: Momentary test switch, AC-ON, Charge-ON and Inverter-ON LED indicator lights
- Safety Circuitry: AC Lockout prevents battery discharge prior to initial unit power-up. Brownout Protection automatically switches the unit to emergency mode when utility voltage is significantly reduced.
- Altitude: < 10,000 feet (3,000m) above sea level without derating.
- Operating Temperature Range: 68°F to 86°F (20°C to 30°C)
- NOTE: Optimum system performance between 20°C and 30°C; temperatures outside of this range will affect battery performance and life.
- Relative Humidity: 95% non-condensing

HOUSING & MOUNTING

- Heavy duty steel cabinet is finished in white baked-on powder paint providing scratch and corrosion resistance.
- Optional paint color (-SP) finishes available, consult factory.
- Surface Mount: Surface mount models are designed for mounting to walls by means of keyhole slots provided in the back of the unit housing.

Project:

Type:

EMPV - Expert Series

SUGGESTED SPECIFICATIONS

An inverter system with sinusoidal output shall be supplied capable of powering any combination of lighting fixtures, including incandescent, fluorescent, induction and/or LED light sources without compatibility problems.

The system shall transfer in less than 1.0 second to reliably back up lighting fixtures without loss of illumination and operate any and all connected lighting fixtures at full lumen output during the complete 90-minute discharge cycle.

The input voltage shall be the same as the output voltage and shall be single phase 120/277 volts, 60 Hz. Output capacity will be (375W/375VA) / (600 Watts/600VA) / (750 Watts/750VA) / (950W/950VA) / (1150W/1150VA) for a minimum duration of 90-minutes.

The design shall be a standby, off-line inverter with on-line efficiency of 98%; on-line double conversion UPS systems shall not be considered acceptable alternatives. EMPV Expert Series system output shall be a pulse width modulation (PWM) generated sine wave with less than 3% total harmonic distortion with "Soft-Start" design reducing fixture inrush current. The system shall also provide short circuit and overload protection as standard.

An intuitive three LED display shall provide system operational information at a glance and alert user to any malfunction in system performance. Authorized maintenance personnel shall have access to the system's controls while being protected from any live exposed connections.

Protective devices shall include AC Line fuses, DC input breaker and a DC input fuse. The entire EMPV Expert Series system, including batteries, shall be incorporated into compact cabinetry which shall have provisions for surface mounting.

System shall be capable of providing up to 4 switch bypass circuits, adjustable output or 2.5 to 10 volt dimmer bypass, remote test switch, and self-test/self-diagnostics, where necessary.

System shall utilize a sealed lead calcium battery with a 10 year design life. The charger shall be temperature compensated, dual mode type, and recharge the batteries as per UL924 guidelines. Entire system shall be tested, approved, and labeled to UL924 Emergency Lighting and Power Systems standards.

WIRING

Connection to an unswitched AC circuit is required by the NEC. Wiring access is provided for by conduit knockouts in the unit housing.

LOAD COMPATIBILITY

EMPV Expert Series models' clean, sinusoidal AC output will operate incandescent lamps as well as all common fluorescent, induction and LED lamp types. Consult factory for compatibility with all other lamp types. Lighting loads are driven at 100% output for the entire emergency power cycle. This outstanding feature translates into greater occupant egress vision and safety.

WARRANTY & UL LISTING

- Unit: (excluding lamps) Full coverage against defects in materials and workmanship for 3 years from date of shipment.
- Battery: 3 years full warranty plus an additional 7 years of pro-rata coverage.
- All models are UL924 Listed and meet NFPA 101 Life Safety Code, NEC, OSHA, Local and State Codes.
- UL Listed for damp locations (20° - 30°C).
- Certified to CEC Under Title 20 regulations
- EMPV Expert Series (750-1150W) is FCC Part 15 Class A Compliant

Project:

Type:

EMPV - Expert Series

Expert Series with FlexDim Option

- For use with 0-10 volt dimmable LED lighting fixtures
- FlexDim for use with EMPV Expert Series models provides four (4) user-adjustable emergency output circuits
- Delivers 25%, 50%, 75% or 100% of full illumination levels to selected LED fixtures during emergency mode operation regardless of local dimmer control switch position
- Works with all standard 0-10 volt dimmer controls
- Reduced emergency illumination levels means fewer total emergency inverter units required on jobs
- FlexDim for EMPV Expert Series models eliminate the need for up to four bypass devices on 0-10 volt dimmer controlled fixtures
- All wiring is done within the EMPV Expert Series housing, no need for additional j-boxes.
- Allows normally-on, normally-off, combination and switched wiring of connected loads
- System may be remotely mounted up to 1,000 feet

The FlexDim4 option is designed for use with the EM Power Vault Expert Series. This option will bypass up to four (4) 0-10 volt dimmer switches as well as allow user-programmable settings for emergency output lighting levels. Each dip-switch can be set to 25%, 50%, 75% or 100% of nominal illumination output during power outages. This outstanding level of control allows for fewer EM Power Vaults systems to be required in typical applications.

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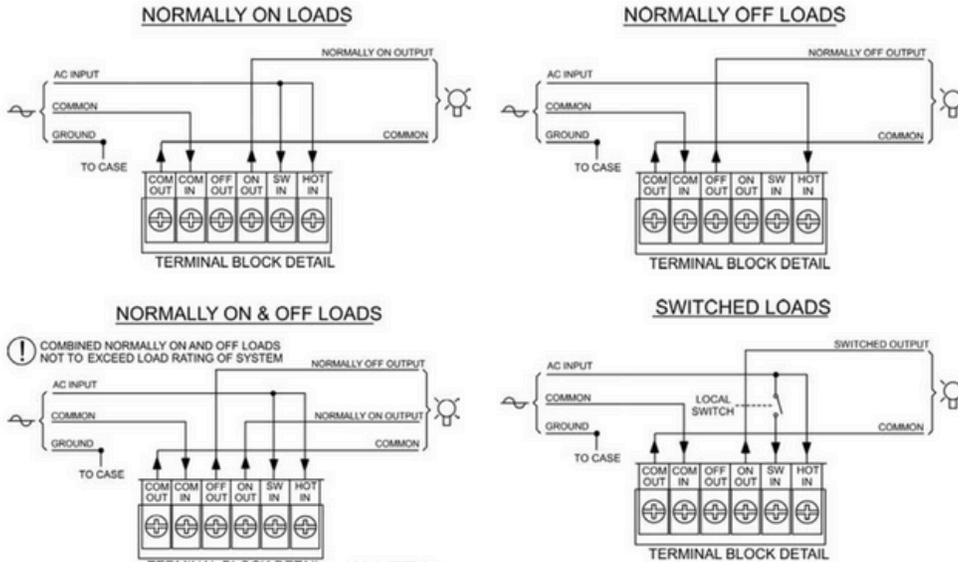
Project:

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EMPV - Expert Series

Wiring Diagrams

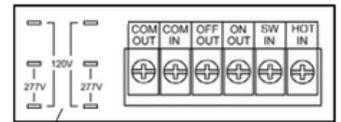
EMPV 375W & 600W



NOTES:

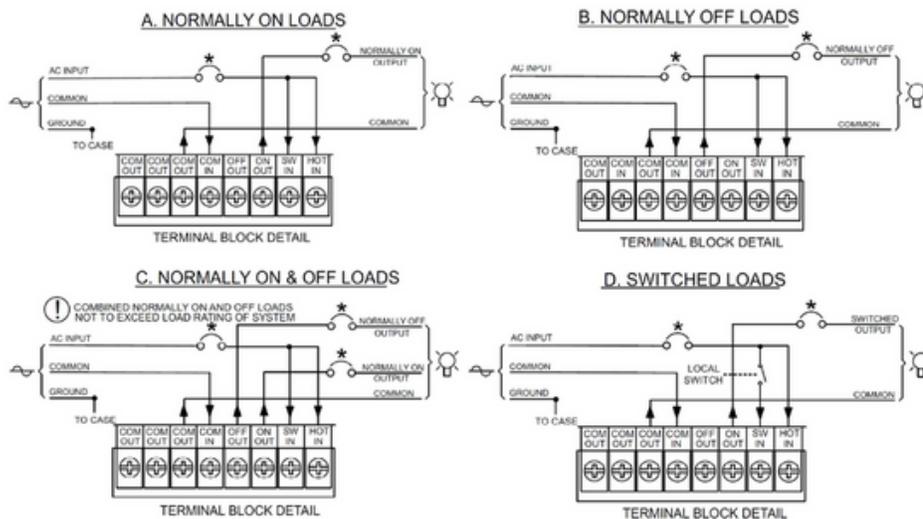
- INPUT SUPPLY FROM UNSWITCHED UTILITY RATED 20 AMPS MAXIMUM.
- OUTPUT(S) TO LIGHTING LOADS

Voltage Selection Detail



Factory terminated jumper wires are provided with EMPV Expert Series models for making user selected input/output voltage connections.

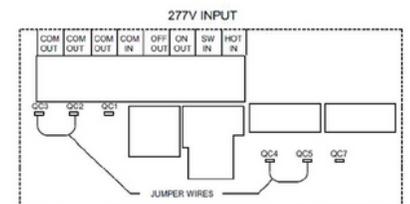
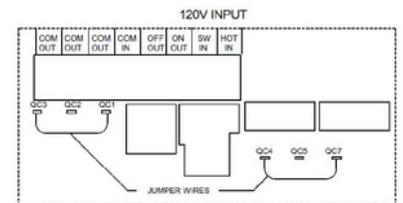
EMPV 750 to 1150W



NOTES:

- INPUT SUPPLY FROM UNSWITCHED UTILITY RATED 20 AMPS MAXIMUM.
- OUTPUT(S) TO LIGHTING LOADS
- * AVAILABLE WITHIN UNIT AS OPTION

Voltage Selection Detail



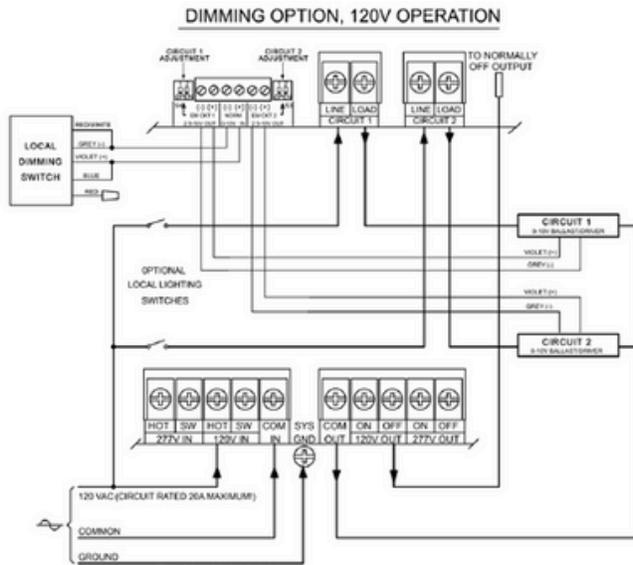
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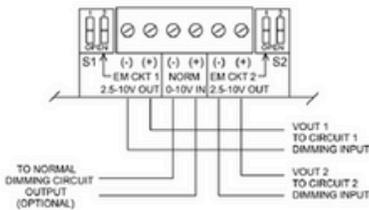
FlexDim Wiring Diagrams



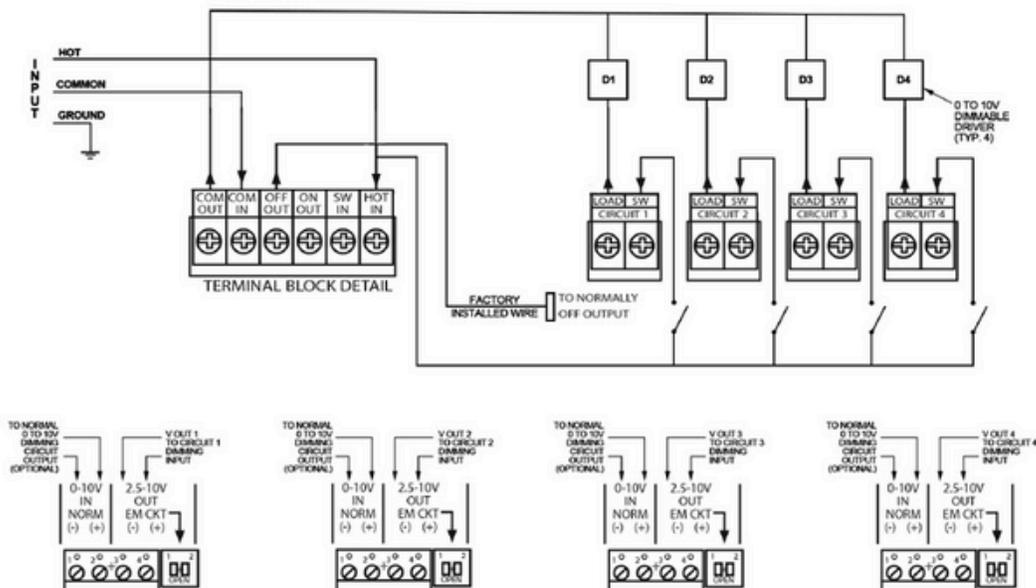
DIMMING OPTION PROGRAMMING TABLE

S1.2-1	S1.2-2	VOUT 1, VOUT 2
OPEN (OFF)	OPEN (OFF)	10.0V
OPEN (OFF)	CLOSED (ON)	7.50V
CLOSED (ON)	OPEN (OFF)	5.00V
CLOSED (ON)	CLOSED (ON)	2.50V

DIMMING OPTION CONTROL WIRING



4 Circuit Output Wiring Diagrams



DIMMING OPTION PROGRAMMING TABLE

S1.2-1	S1.2-2	VOUT 1, VOUT 2
OPEN (OFF)	OPEN (OFF)	10.0V
OPEN (OFF)	CLOSED (ON)	7.50V
CLOSED (ON)	OPEN (OFF)	5.00V
CLOSED (ON)	CLOSED (ON)	2.50V

DIMMING OPTION CONTROL WIRING